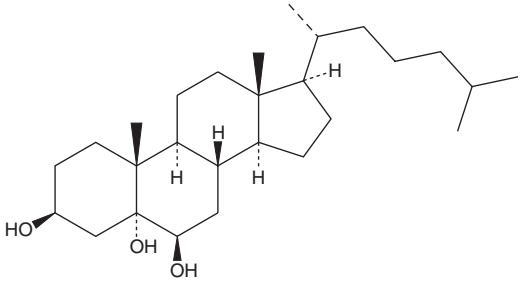
PRODUCT INFORMATION

5α,6β-Dihydroxycholestanol

Item No. 25538

CAS Registry No.: 1253-84-5
Formal Name: cholestane-3β,5α,6β-triol
Synonyms: Cholestanetriol, NSC 124751, NSC 18178, 5α,6β-di-OHC
MF: $C_{27}H_{48}O_3$
FW: 420.7
Purity: ≥95%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

5α,6β-Dihydroxycholestanol is supplied as a crystalline solid. A stock solution may be made by dissolving the 5α,6β-dihydroxycholestanol in the solvent of choice. 5α,6β-Dihydroxycholestanol is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of 5α,6β-dihydroxycholestanol in these solvents is approximately 20, 0.1, and 2 mg/ml, respectively.

5α,6β-Dihydroxycholestanol is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 5α,6β-dihydroxycholestanol should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. 5α,6β-Dihydroxycholestanol has a solubility of approximately 0.3 mg/ml in a 1:2 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

5α,6β-Dihydroxycholestanol is an oxysterol metabolite of cholesterol formed from conversion of cholesterol epoxides by 5,6-epoxysterol hydrolase.[1,2] It inhibits NMDA-mediated calcium influx in HEK293 cells expressing NR1/NR2B NMDA receptors in a concentration-dependent manner. It also binds to voltage-gated sodium (Na_v) channels and decreases action potentials in hippocampal neurons *in vitro* when used at a concentration of 10 µM.[2] It increases survival of spinal cord motoneurons, cortical neurons, and cerebellar granule neurons *in vitro* when used at concentrations ranging from 5 to 15 µM.[3] 5α,6β-Dihydroxycholestanol is neuroprotective in a rat model of cerebral ischemia when administered at a dose of 12 mg/kg and increases latency to seizure onset and reduces severity of seizures induced by pentylenetetrazole (PTZ; Item No. 18682) in rats. 5α,6β-Dihydroxycholestanol has been used as a replacement for cholesterol in the study of cholesterol binding proteins.[4]

References

1. Aringer, L. and Eneroth, P. Formation and metabolism *in vitro* of 5,6-epoxides of cholesterol and β-sitosterol. *J. Lipid Res.* **15(4)**, 389-398 (1974).
2. Tang, L., Yan, M., Leng, T., *et al*. Cholestane-3β, 5α, 6β-triol suppresses neuronal hyperexcitability *via* binding to voltage-gated sodium channels. *Biochem. Biophys. Res. Commun.* **496(1)**, 95-100 (2018).
3. Hu, H., Zhou, Y., Leng, T., *et al*. The major cholesterol metabolite cholestane-3β,5α,6β-triol functions as an endogenous neuroprotectant. *J. Neurosci.* **34(34)**, 11426-11438 (2014).
4. Sheng, R., Kim, H., Lee, H., *et al*. Cholesterol selectively activates canonical Wnt signalling over non-canonical Wnt signalling. *Nat. Commun.* **5:4393**, (2014).

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